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THE FLOW OF HIGH SCHOOL STUDENTS TO SCHOOLS, COLLEGES, AND JOBS.

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A sample of students was followed from high school senior status to their educational or vocational situation one year later. The data were taken mainly from 5,508 completed questionnaires. Most of the students were attending 4-year or junior colleges, while the rest were in trade, business, or nursing schools, were working full-time, or were in military service. When student groups were compared on divergent, multiple measures of academic and nonacademic potential, the distribution of students to training institutions or jobs was found to be based primarily on academic rather than on nonacademic dimensions of talent. The aspirations of students were generally in agreement with their educational or vocational outcomes. Implications of the results for the assessment of "talent loss" are discussed. (Author/HH)

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26

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Summary

A sample of students was followed from high school senior status to their educational or vocational situation one year later. The majority of students were attending four-year or junior colleges, while smaller numbers of students were in trade or business schools, nursing schools, working full time, or in the military service. When student groups were compared on measures of academic and nonacademic potential, the distribution of students to training institutions or jobs was found to be based primarily on academic rather than nonacademic dimensions of talents. The aspirations of students were generally congruent with their educational or vocational outcomes. Some implications of the results for the assessment of "talent loss" are discussed.

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The Flow of High School Students to Schools, Colleges, and Jobs: A Reexamination of Some Old Questions by the Use of Multiple Indices of Talent Rather than by a Single Academic Index

Leonard L. Baird and John L. Holland

American College Testing Program

Although the terms "talent" and "talent loss" can be variously defined, educators and social scientists customarily define "talent" in terms of a single dimension--academic aptitude--usually measured by school grades or academic aptitude test scores. Those students scoring above a certain level are "talented," while the others, by implication, are "untalented." And "talent loss" is the percentage of "talented" students who fail to attend college.[1] This kind of definition appears eminently practical at first glance, but the practical advantages of definitions based on academic measures do not justify their current popularity. Academic measures are not efficient forecasters of a great range of talented performance. At best, the only talented performance they predict well is academic performance.[2] Estimating talent loss with academic measures is analogous to fishing with a hook that will catch only a single species. For the assessment of human talent, a variety of hooks is needed to secure

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[1]For a more complete discussion of the definitions of "talent" and "talent loss" see Holland and Astin (1962).

[2]Holland and Richards (1967a) recently summarized some of the pertinent evidence.

the variety of human talents.

In this study, we examined the movement of high school students to schools, colleges, and jobs by multiple measures of talent rather than by academic measures alone. From our past work, we expected to find that the use of divergent, multiple measures of talent would reveal different and more informative estimates than academic measures alone of how talented students distribute themselves (and are distributed by other persons, institutions, and businesses). Consequently, we followed a large group of high school students from high school to their educational or vocational situations one year later.

Method

Initial assessment devices. All the students in the sample took the ACT Assessment as part of the ACT program. The ACT Assessment includes reports of high school grades and tests of academic aptitude. The test scores for each student are converted to ACT standard scores with a mean of 20 and a standard deviation of 5, based on college-bound high school seniors (American College Testing Program, 1965).

The ACT Assessment also includes the Student Profile Section. In this section, the student reports his expectations concerning work, housing, and extracurricular participation in college, his reasons for choice of college, his family background, his choice of major and vocation, his degree plans, and his nonacademic achievements. Scales of high school nonacademic achievements yield scores in science, art, leadership, writing, music, and drama. Students with high scores presumably have attained a

high level of accomplishment requiring complex skills, long term persistence, or originality. These nonacademic accomplishment scales have been found to have useful reliability and validity (ACT Technical Manual, 1965; Richards, Holland, & Lutz, 1967.)

Follow-up questionnaire. The follow-up instrument was a one-page questionnaire which included questions about the kinds of schools students had attended since leaving high school, student status, and work status. Other questions asked the students who had dropped out of college their reasons for doing so. Students in college were asked to indicate their source of financial support while they were in school. Those who had a fulltime job were asked what type of job it was and how well they liked it. Those who had never attended college were asked if they had wanted to go and their reason for not going.

Statistics. In order to test for differences between the students with different educational or vocational outcomes, one-way analyses of variance were used when appropriate following procedures outlined in Winer (1962). In order to assess the strength of the association between the outcomes and the other variable, we also computed omega squared (ω^2), a statistic developed by Hays (1963) which is similar to the intraclass correlation coefficient. This statistic estimates the proportion of variance in a dependent variable accounted for by the independent variable. It provides an estimate of the investigator's power to predict one variable from another.

Student Sample

The sample of students was taken from a tape of a three percent

random sample of all high school seniors who took the ACT tests on national test dates between November, 1965 and February, 1966 (N≈535, 000). For the purposes of this study, the records of every other senior on the ACT tape were taken (N=8, 433). In the fall of 1966, follow-up questionnaires were mailed to the last current address of these students, and 5, 508 of the questionnaires were completed and returned. The data for students filling out the follow-up questionnaire were merged on a tape with the data collected in their senior year.

To determine whether our procedure resulted in a biased sample, we compared students who had completed the follow-up questionnaire with those who had not on measures from the ACT battery and Student Profile Section. Some of these comparisons are shown in Table 1. Students without follow-up data had somewhat lower ACT scores and high school grades, but the two groups did not differ in number of nonacademic achievements, goals in attending college, or anticipated major field. The two groups were also similar in terms of educational degree sought, expectations concerning transportation and residence in college, planned activities, reasons for college choice, and family background.

Although the data indicate that students with follow-up and those without were similar on input measures (except for some differences in academic aptitude), we also needed to know if the two groups of students had different educational and vocational outcomes a year later. For this reason, a telephone survey of every tenth nonrespondent was conducted. We were able to obtain information for 186 of the 340 students in this 10% sample.

Table 1

Comparison of Students With and Without Follow-up Data on Data Collected in High School

	With	Without
Academic aptitude		
ACT Composite $\bar{X}$	21.0	19.0
ACT Composite S.D.	4.9	5.0
HS GPA $\bar{X}$	2.65	2.44
HS GPA S. D.	.71	.68
Nonacademic achievements (%)		
12+	17.4	18.0
10-11	10.4	9.7
8-9	13.4	13.1
6-7	17.0	17.2
4-5	16.7	16.8
2-3	14.9	14.6
0-1	10.2	10.7
Goals in college (%)		
Develop mind	40.0	38.2
Vocational prof. training	50.1	50.2
Higher income	4.8	6.3
Other	5.1	5.3
Major field (%)		
Social science, religion	8.1	8.1
Educational	16.8	16.0
Adm. polit., persuasive	8.6	10.2
Business	8.4	8.6
Scientific	8.0	5.2
Agriculture	2.8	2.8
Medical	11.4	10.0
Arts and humanities	10.0	9.7
Engineering	8.3	8.2
Trade and industrial	1.8	2.1
Other	1.1	1.2
Undecided	14.5	17.8

Inquiries were made about the college they were currently attending (if any) and their current student and work status. Table 2 shows the percentage of students with various outcomes for those with follow-up and for those who were contacted in the phone survey. Slightly more students among those without follow-up were not attending college (13 as opposed to 8 percent) and slightly fewer were attending a junior college (14 as opposed to 19 percent). The follow-up sample also included more fulltime students (87 as opposed to 83 percent) and fewer students who did not plan to enter a school at any time (1 as opposed to 4 percent). Thus, the sample with follow-up was composed of students with somewhat higher academic aptitude and did not include as many students without plans for attending college as it should have, although these biases were not large. These biases meant that our results probably underestimated the number of students who were not attending college, who were unemployed, etc.

We analyzed the sample in three ways: first, by the type of college attended--four-year, junior college, trade or business school, nursing school, and never attended college; second, by student status--fulltime students, parttime students, and those not in college; finally, by work status--fulltime students not working, working students, and fulltime workers not attending college.

Results

When we look at the information in Tables 2 and 3 to learn what the high school students were doing one year later, we find that 64% were attending a four-year college, 19% were in junior colleges, 4% were in

Table 2

A Comparison of Students with and without Follow-up Data on Outcomes One Year after High School

Present college attended (%)	With	Without
None	8	13
Four-year college	64	64
Junior college	19	14
Technical institute	2	<1
School of nursing	1	<1
Trade or business school	2	2
Armed forces school	<1	2
Other	1	<1
Still in high school	3	3
Present student status (%)	**With**	**Without**
Fulltime student	87	83
Parttime student	3	4
Dropped out temporarily	1	2
Not attended but plan to go in year or two	4	3
Not attended but plan to go, don't know when	2	1
Not attended, do not plan to go	1	4
No data, unknown	2	3

Note. Based on phone survey of nonrespondents.

trade, technical, or business schools, 1% were in nursing training, 4% were employed in fulltime jobs, 3% were still in high school, and 5% were in the military service, other types of institutions, or were unaccounted for.

The mean ACT Composite scores, high school grades, and nonacademic achievements of the groups are shown in Table 3. Although the F tests in Table 3 are significant across the groups formed by type of college attended (with the exception of art achievement), it is clear that most differences in nonacademic achievements are small in absolute terms. Most striking is the fact that the strength of the relations is very small, as estimated by the ω^2 figures. Even the largest association--between outcomes and ACT Composite--accounts for only about 10% of the variance. (This can be considered approximately equivalent to a correlation of .32.) The association between outcomes and nonacademic achievement accounts for less than one percent of the variance in every case.

Similar results hold for the comparisons of the samples grouped by student status. In this case, only two of six nonacademic achievements had significant F tests. Again, the associations accounted for less than one percent of the variance, as estimated by ω^2. The largest association, between student status and ACT Composite, accounts for less than four percent of the variance (approximately equivalent to a correlation of .19).

The last analysis in Table 3, for work status, shows again that the F values are significant for only two of six nonacademic achievements, and that the proportion of variance accounted for is very small in every case.

Table 3

The Relation of Student Talents Assessed in High School

to Current Educational - Occupational Status One Year Later

High school area (%)	By type of college attended							By student status					By work status				
	4 year	jun coll	tr bus	nurs	never att	F	ω^2	full time	part time	not coll	F	ω^2	full stu	work stu	full work	F	ω^2
Academic apt.																	
ACT Comp $\bar{X}$	22.2	19.0	18.1	21.4	18.3	154.47*	.105	21.4	18.2	18.3	105.79*	.037	21.6	20.9	18.4	55.27*	.022
S.D.	4.6	4.7	5.2	3.5	4.9			4.8	5.0	4.8			4.8	4.7	4.7		
HS GPA $\bar{X}$	2.79	2.41	2.32	2.83	2.29	107.36*	.076	2.69	2.40	2.33	59.04*	.021	2.72	2.61	2.29	47.54*	.019
S.D.	.69	.67	.68	.53	.68			.70	.62	.68			.70	.70	.71		
Nonacademic achievement																	
Science	.98	.82	.64	1.14	.57	10.63*	.008	.95	.63	.60	13.73*	.005	.92	.93	.52	8.64*	.003
Art	.59	.63	.48	.57	.54	.96	.000	.60	.77	.54	1.97	.000	.59	.62	.55	.57	.000
Writing	1.17	.89	.86	1.25	1.00	10.32*	.007	1.10	1.08	1.01	.93	.000	1.11	1.07	.98	1.19	.000
Leadership	2.36	2.00	1.92	2.39	2.00	10.91*	.008	2.28	2.00	2.11	2.70	.001	2.25	2.29	2.02	2.12	.000
Music	1.74	1.46	1.46	1.96	1.36	7.42*	.005	1.67	1.77	1.33	6.20*	.002	1.71	1.60	1.12	10.93*	.004
Drama	1.37	1.19	1.15	1.49	1.21	3.97*	.002	1.34	1.08	1.28	2.05	.000	1.35	1.27	1.15	2.79	.001
N	3536	1049	212	60	387			3252	1418	239			3252	1418	239		

Note. Data are for men and women combined.

*indicates significant at .01 level.

In short, the estimates of student academic potential (grades and ACT scores) in high school shown in Table 3 appeared consistent with the distribution of student outcomes; that is, the four-year college students had the highest average ACT scores and high school grades and the students belonging to other groups had lower academic potentials. In contrast, the estimates of nonacademic talents revealed that four-year college students generally differed in only minor ways from students of junior colleges, trade and business schools, nursing schools, and nonattenders. This pattern of results is strong evidence that the distribution of students to training institutions proceeds primarily along academic rather than nonacademic dimensions of talent.

In spite of some differences, the amount of overlap was great, as demonstrated in some comparisons of fulltime students and those who were not in college. In Table 3, the rate of achievement was approximately the same in most areas of nonacademic achievement. Even in the case of academic aptitude, the overlap was fairly large. While 64% of the fulltime students had ACT Composite scores of 20 or above, 40% of those who were not in college had scores of 20 or above. This result, along with other findings, implies that self-selection and institutional selection processes generally distribute people in appropriate schools or jobs in only an approximate or inefficient way; that is, many "talented" people do not go to college, and some "untalented" people do. This outcome can be seen more clearly by comparing the college attendance patterns of the students in the top 15% of academic aptitude (26 or above on

the ACT Composite) with the attendance patterns of the top 15% of nonacademic achievers (12 or more achievements). The top 15% of nonacademic achievers were more than twice as likely to be nonattenders than the top 15% of academic achievers. While the figures in this case are small (5.1% of the nonacademic achievers not in college compared to 2.1% of the academic achievers), the difference gains importance if we assume that our sample roughly represents the thousands of students not in college.[3] This finding suggests that many students with high potentials for nonacademic achievements do not go on to college. To summarize, students distribute themselves and are distributed so that their aspirations and their academic and nonacademic potentials are only loosely congruent with the demands of their educational or vocational situation.

The aspirations of high school students and their educational or occupational status one year later are shown in Table 4. In general, students' aspirations and current situation are congruent. College students at four-year colleges typically sought four-year and advanced degrees, hoped to develop their mind, and aspired frequently to educational and scientific vocations. Junior college students and trade-business students sought lower level degrees, hoped to acquire vocational or professional training, and aspired frequently to business and skilled trade vocations. Nursing students wanted to become nurses. Last, the high

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[3]Flanagan and Cooley (1966) estimate that approximately one million graduating high school seniors each year do not go to college.

Table 4

The Relation of Student Aspirations to Current Status
(Men and Women)

	By Type of College Attended (%)					By Student Status (%)			By Work Status (%)		
	4-Year	JC	Tr-Bus	Nurs	Never Att.	F Time	P Time	Not Coll.	No Work	W Stu	Full Time
(%)											
Vocational Choice											
Soc. Sci, Rel.	5.6	5.8	1.9	--	6.5	5.5	2.1	5.6	5.0	5.9	5.1
Education	21.6	16.1	9.0	--	12.8	19.5	23.1	14.9	19.8	18.0	14.0
Adm. Pol.	7.8	6.3	6.6	--	4.7	7.4	5.6	5.4	7.3	7.6	5.5
Business	5.5	11.3	15.6	--	13.6	7.0	8.4	12.2	6.5	8.5	16.2
Scientific	4.7	2.6	2.8	--	1.0	4.2	3.5	1.5	4.3	3.8	1.3
Agric. For.	2.3	4.3	0.9	--	2.6	2.8	2.1	3.7	2.6	2.7	3.0
Medical	11.5	9.0	10.0	96.7	9.7	12.2	10.5	10.2	12.5	11.4	10.2
Arts & Hum.	6.2	5.2	4.3	1.7	4.7	5.9	5.6	4.9	6.1	5.2	3.8
Engineering	7.2	5.2	10.0	--	5.0	6.7	4.2	3.7	6.9	7.1	4.7
Trade, Indus.	1.4	3.0	10.4	--	5.0	2.1	3.5	4.1	2.1	2.9	4.3
Housewife	0.6	0.7	0.5	1.7	1.0	0.6	0.7	1.2	0.6	0.4	0.9
Other	5.2	6.6	9.5	--	11.7	5.7	7.7	12.0	5.4	6.1	10.6
Undecided	20.3	23.9	18.5	--	21.7	20.6	23.1	20.7	20.7	20.4	20.4
Degree Aspirations											
Voc. Tech. 2yr.	1.2	1.3	17.6	1.7	10.9	1.9	7.1	9.4	1.8	2.5	11.3
JC Degree	2.0	18.3	17.1	1.7	17.1	6.0	14.3	17.4	5.0	8.5	19.2
BA or Equiv.	50.2	48.9	35.7	49.2	40.2	49.1	50.0	40.3	49.6	47.8	39.7
MA or Equiv.	29.4	19.8	17.1	13.6	15.0	26.8	19.3	15.9	27.2	25.1	14.2
PhD	5.0	1.9	2.4	--	2.1	4.2	1.4	1.9	4.5	3.3	1.3
MD, DDS	5.5	2.8	1.4	1.7	1.0	4.8	2.1	1.9	4.5	5.4	0.8
LLB	2.5	1.0	0.0	--	0.8	2.0	0.7	1.7	2.1	1.6	0.4
BD	0.3	0.6	0.0	--	0.8	0.4	--	0.5	0.4	0.4	0.4
Other	3.6	5.1	7.6	30.5	10.6	4.6	4.3	9.7	4.5	4.9	10.5
Goals in College											
Develop Mind	43.2	34.7	33.2	21.7	34.9	40.8	30.6	33.8	42.3	35.2	29.7
Voc. Prof. Trn.	47.8	53.7	56.9	75.0	51.7	49.8	56.3	53.1	48.4	54.3	57.3
Higher Inc.	4.2	6.8	4.3	1.7	4.9	4.6	7.6	5.6	4.2	6.4	5.4
Totals	3536	1049	212	60	387	4826	144	414	3252	1418	239

school students who obtained fulltime jobs were interested primarily in vocational training, lower level degrees, and business occupations.

Table 5 shows how student-family incomes reported in high school are related to current student status. The data in Table 5 are generally congruent with much earlier research--high incomes were associated with fulltime attendance and attendance at a four-year college, and low incomes with lower level training and nonattendance (Lipset & Bendix, 1960; Flanagan & Cooley, 1966; Slocum, 1966; Baird, 1967).

The results for the total sample (men plus women) given in Tables 3, 4, and 5 have also been recalculated for separate groups of men and women and are given in the Appendix, Tables A and B. Almost without exception, the differences between men and women are in accordance with substantial literature and folklore. For example, women were more interested in religious, educational, social, and artistic occupations than men; whereas men were more interested in administrative, political, scientific, agricultural, and technical occupations. And men were more apt to attend college than women, etc.

The remaining results, because of the small subsamples, are too unreliable to warrant full reporting. Of the 414 students not attending college, more than 29% said they had not wished to attend. Men typically preferred to enter the military service, and women wanted to earn money or marry. Among those who wanted to attend college but did not, the most common explanation for nonattendance was, "I couldn't afford it," although the validity of this reason is unclear.

Table 5

The Relation of Current Status to Family Income
(Men and Women)

	By type of college attended (%)					By student status (%)			By work status (%)		
Family income	4-year	JC	Tr-bus	Nurs	Never Att	F time	P time	Not coll	No work	W stu	Fulltime
$ 5,000 or less	9.4	9.4	12.9	11.7	16.3	9.4	9.0	15.7	7.9	13.1	15.5
5-7,500	22.0	24.1	20.5	23.3	30.0	22.5	22.2	29.7	21.5	25.4	31.4
7.5-10,000	17.0	19.0	15.7	15.0	14.0	17.4	17.4	13.5	17.3	17.8	16.3
10-15,000	18.5	15.4	12.9	13.3	9.0	17.6	13.2	8.5	18.1	16.0	7.5
15-20,000	4.5	3.7	5.2	3.3	1.8	4.4	4.9	2.7	4.7	3.3	0.8
20,000+	3.9	3.0	1.4	0.0	0.6	3.7	2.1	0.4	4.2	2.3	0.0
Confidential	4.0	3.3	2.9	8.3	4.4	3.9	2.8	4.8	3.9	3.6	4.2
Don't know	20.7	21.9	28.6	25.0	24.0	21.1	28.5	24.6	22.4	18.5	24.3
Mdn fam inc	8,426	8,025	7,640	7,320	6,625	8,305	7,960	6,650	8,580	7,050	6,610
Total	3,536	1,049	212	60	387	4,826	144	414	3,252	1,418	239

Among students with fulltime jobs, two-thirds of the women had such clerical jobs as secretary, typist, or clerk. Men were working in a great range of jobs, and more than 84% of the women and men said they liked their jobs "very well," or "fairly well." However, when asked how long they planned to stay in the same kind of work, 36% said they planned to change soon and only 13% planned to make the same kind of work a career.

The most important source of support for students in college was their families. Very few students had loans of any kind. Some students (24%) rated their own savings as a major source of support, a few (11%) rated their work while attending school as a major source, and a few more (16%) rated a scholarship as a major source.

Some Implications

The present student sample appears to be a useful approximation of the college-going population but not of the high school senior population. The median family income of the present sample is much higher than the national average ($8,115 as opposed to 6,569),[4] and their average ACT Composite is at the 82nd percentile rank for unselected high school seniors. For these reasons, and because of the sampling loss described earlier, the present study probably underestimates the amount of talent loss when it is defined as the failure of students scoring high in academic and nonacademic criteria to attend college. The sampling biases also mean that the small

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[4]U. S. Bureau of the Census, Statistical Abstract of the United States, 1966 (89th edition), Washington, D. C.

percentages of students found in noncollege situations are also underestimated. On the other hand, the sampling biases do not appear to vitiate the estimation of academic and nonacademic talent loss within the population of college-aspiring youth.

The finding that academic and nonacademic estimations of talent yield divergent outcomes has many important implications. First, the sorting process in the high school-college transition is largely based on academic factors. Therefore, earlier studies using academic measures probably underestimate the total "talent loss" as conventionally defined. Even considering academic talent alone, the analyses by type of college illustrate that there is a college for everyone. For example, there were 70 students in the sample who had ACT composite scores of 11 or below (the fifth percentile on national norms) who were attending a four-year college. (In contrast, there were 71 students with scores of 23 or above who were working full time.) Apparently, low academic aptitude scores are not necessarily a great handicap to college attendance. This is especially true in those states with "open-door" colleges. Further, it appears that the main reason high school students do not go to college is that they do not care to and have developed other plans. Second, the common labeling of people who do not attend college as "less talented" or "untalented" is grossly misleading if we take a broad view of human talent. Third, it does not seem meaningful to regard the noncollege-going population as "lost talent" for the majority of these people obtain jobs (and are generally satisfied with their jobs), enter the military service, enter

business and technical schools, or marry. In this sense, there is very little "lost" talent. Talent goes somewhere where it can be used. Only a few students were unaccounted for, and even if we assume a large sampling bias, the actual percentage who would be unaccounted for in the student population is probably still small. Fourth, we need to know more about talented people who do not go to college. Many, perhaps most, studies of talented persons use college graduate populations as if they were the only source of talent. The present results indicate that talented people can be found in many groups of other kinds.

The present findings are indirectly supported by a similar analysis by Flanagan et al. (1964), who demonstrated that a dramatic increase in students labeled "talented" occurred when four aptitude measures were used instead of one. Specifically, "...while 16.3% were identified as above the 90th percentile in general academic aptitude, an additional 19.2% were identified..." using three other measures and a cutting score of the 90th percentile. The Flanagan findings are impressive because they used highly intercorrelated test measures (.66 to .94) and still obtained a much more diverse group of students than that identified by the academic aptitude measure. In contrast, the present study used test and nontest measures with small or negligible intercorrelations (Holland & Richards, 1967a). The present results are strengthened by another analysis by Holland and Richards (1967b) which reveals that the use of high cutting scores on high school grades eliminates large proportions of students with outstanding accomplishments in art, music, literature,

leadership, and science.

In conclusion, the results suggest some of the difficulties in defining "talent" and "talent loss." Before we can assess the degree of "talent loss" in even an approximate way, we need to know many things. First, we need to describe the socially relevant outcomes which we hope "talent" will attain. We then need to know what kinds of human abilities are essential for the attainment of these outcomes, as well as the appropriate environmental and social conditions. Finally, we need to know which kinds of training programs best develop and inform the people with the required abilities so that they will attain the outcomes we value. Clearly, we must know much more and make many value judgments before we can speak of "talent loss" with any accuracy. However, it is equally clear that academic talent and, therefore, the outcomes of academic training are only one part of the total range of talents and outcomes we value. Many other endeavors--work, marriage, etc.-- are also socially relevant areas which allow achievements and actions which are of intrinsic value to the self and to society. Many careers do not require a college degree for entry nor for the achievement of excellence. College training is not the only kind of experience which leads to the development of talents. The academic community is not the only one worth belonging to, and the life of the mind can be lived outside the campus. Thus, it seems naive to think that a person's career is decided by his choice at the end of high school. Many other factors play a part in determining the course of talent, and there are many paths to achievement other than college. If a

talented person does not enter college, it does not necessarily mean he has lost his chances for success in life. In some cases, a college career may even interfere. The present results suggest that many talented people do choose paths other than college, and the diffusion of talent into these many paths may have beneficial results. As Wolfe (1960) said earlier:

> "in the selection and education of persons of ability, it is advantageous for a society to seek the greatest achievable diversity of talent: diversity within an individual, among the members of an occupational group, and among the individuals who constitute a society."

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Table A

The Relation of Student Potentials, Aspirations, and Family Income in High School to Educational-Occupational Status One Year Later
(Men)

	By Type of College Attended				By Student Status			By Work Status		
	4-Year	JC	Tr-Bus	Never Att.	F Time	P Time	Not Coll.	No Work	W Stu	Full Time
Academic Apt.										
ACT Comp										
X	22.7	19.4	18.4	18.9	21.8	18.4	18.9	22.1	21.2	18.5
S.D.	4.5	4.7	5.5	5.1	4.8	5.4	5.1	4.7	4.7	5.2
HS GPA										
X	2.68	2.25	2.18	2.08	2.57	2.15	2.15	2.61	2.47	2.05
S.D.	.71	.64	.62	.60	.71	.55	.63	.71	.70	.61
Vocational Choice										
Soc Rel	2.9	3.0	1.0	3.3	2.8	3.6	2.4	2.4	3.6	3.0
Educ	8.5	8.9	2.0	4.6	8.3	7.3	6.5	7.9	9.0	5.1
Adm Pol	11.8	8.7	8.9	5.3	10.9	9.1	6.5	10.9	11.0	6.1
Business	6.2	7.6	8.9	7.3	6.8	1.8	7.1	6.2	7.3	10.1
Scientific	6.9	3.5	5.9	2.0	6.1	9.1	3.0	6.8	4.8	2.0
Agric For	4.3	7.8	2.0	6.6	5.2	5.5	8.9	5.0	4.6	7.1
Medical	11.0	5.9	2.0	0.7	9.6	5.5	1.2	9.8	9.3	1.0
Arts & Hum	4.2	4.7	4.0	6.6	4.4	0.0	6.5	4.4	4.2	6.1
Engineering	13.4	9.4	20.8	12.6	12.5	10.9	8.9	13.5	12.1	11.1
Trade Indus.	2.7	5.2	20.8	11.9	3.9	9.1	9.5	3.9	5.1	10.1
Other	4.9	6.4	4.0	11.9	5.5	5.5	13.0	5.0	5.4	11.1
Undecided	23.3	29.0	19.8	26.5	24.1	32.7	26.0	24.1	23.7	26.3
Degree Aspiration										
Voc. Tech. 2yr.	0.8	0.7	16.0	9.2	1.3	5.6	8.2	1.3	2.0	10.9
J.C. Degree	1.4	14.9	14.0	13.1	4.9	16.7	16.4	3.7	7.2	14.9
BA	42.7	50.6	44.0	37.9	44.4	50.0	37.4	44.4	44.6	39.6
MA	29.8	19.6	17.0	20.9	27.0	16.7	19.3	27.3	26.3	18.8
PhD	7.4	2.8	3.0	2.6	6.3	0.0	1.8	6.7	4.2	2.0
MD, DDS	8.6	4.5	1.0	0.7	7.4	5.6	2.3	7.5	7.4	1.0
LLB	4.5	1.4	0.0	2.0	3.5	1.9	3.5	3.8	2.8	1.0
BD	0.5	0.9	0.0	1.3	0.6	0.0	0.6	0.7	0.6	0.0
Other	4.1	4.3	4.0	10.5	4.2	3.7	9.4	4.4	4.2	9.9

Table A cont.

	4-Year	JC	Tr-Bus	Never Att.	F Time	P Time	Not Coll.	No Work	W Stu	Full Time
Goals in College										
Develop Mind	40.3	30.7	28.7	30.7	38.1	23.6	31.0	40.0	30.9	26.7
Voc Prof Tr	49.4	53.0	59.4	51.6	50.4	50.9	51.5	49.3	55.0	55.4
Higher Inc.	6.7	11.1	4.0	7.8	7.5	16.4	11.1	6.6	9.6	9.9
Nonacademic Ach.										
Science										
3+	16.4	13.8	8.2	7.9	15.4	14.3	6.0	15.8	13.8	6.0
1-2	39.6	31.4	36.1	27.7	34.7	31.4	35.9	33.9	35.0	34.3
0	49.0	54.8	55.7	64.4	49.9	54.3	58.1	50.3	51.1	59.7
Art										
3+	4.7	7.3	4.1	3.4	5.1	7.0	3.7	5.0	5.6	5.1
1-2	20.5	22.1	21.9	29.4	20.8	25.6	25.9	19.6	23.8	25.6
0	74.8	70.6	74.0	67.2	74.0	67.4	70.4	75.4	70.5	69.2
Writing										
3+	8.9	6.3	7.2	6.3	8.3	9.8	6.3	8.4	8.5	6.5
1-2	35.9	31.1	26.1	24.3	35.1	24.4	28.7	35.9	29.6	26.3
0	55.1	62.7	66.7	69.4	56.7	65.9	65.1	55.6	61.9	67.1
Leadership										
3+	39.2	29.6	30.7	33.3	36.7	31.3	32.7	37.0	36.4	30.0
1-2	39.8	39.8	38.6	37.7	40.3	39.6	38.6	40.0	39.1	38.9
0	21.0	30.6	30.7	29.0	23.0	29.2	28.8	23.0	24.5	31.1
Music										
3+	24.1	18.4	21.5	14.6	22.7	28.9	15.8	23.5	22.7	11.9
1-2	25.7	23.7	23.8	22.3	25.4	22.2	22.6	25.7	24.7	23.8
0	50.1	57.9	54.8	63.1	51.9	48.9	61.6	50.9	52.5	64.3
Drama										
3+	16.0	11.9	11.7	12.5	14.9	13.3	12.1	16.0	13.1	12.5
1-2	37.4	37.4	36.4	35.8	37.6	40.0	37.9	37.4	36.6	33.7
0	46.6	50.7	51.9	51.7	47.5	46.7	50.0	46.6	50.2	53.7
Mdn Fam Inc	8,720	8,500	7,830	6,980	8,610	7,890	7,070	8,910	7,930	7,360
N	1856	580	102	153	2553	55	171	1657	811	101

Table B

The Relation of Student Potentials, Aspirations, and Family Income in High School to Educational-Occupational Status One Year Later
(Women)

	By Type of College Attended					By Student Status			By Work Status		
	4-Year	JC	Tr-Bus	Nurs	Never Att.	F Time	P Time	Not Coll.	No Work	W Stu	Full Time
Academic Apt.											
ACT Comp											
X	21.6	18.5	17.8	21.4	18.0	20.8	18.0	18.0	21.0	20.5	18.3
S.D.	4.6	4.7	4.8	3.5	4.7	4.8	4.8	4.6	4.8	4.6	4.4
HS GPA											
X	2.90	2.60	2.45	2.83	2.43	2.83	2.56	2.47	2.83	2.80	2.47
S.D.	.65	.66	.70	.53	.69	.67	.61	.69	.67	.66	.73
Vocational Choice											
Soc. Sci, Rel	8.7	9.4	2.7	0.0	8.6	8.4	1.1	7.9	7.8	8.9	6.6
Educ	36.0	24.1	15.5	0.0	18.1	32.0	33.0	20.7	32.1	30.1	20.6
Adm Pol	3.4	3.4	4.5	0.0	4.3	3.4	3.4	4.6	3.5	3.1	5.1
Business	4.7	15.8	21.8	0.0	17.7	7.2	12.5	15.8	6.8	10.1	20.6
Scientific	2.3	[illegible]5	0.0	0.0	0.4	2.0	0.0	0.4	1.8	2.5	0.7
Agric. For.	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.0
Medical	12.0	12.8	17.3	96.7	15.5	15.1	13.6	16.6	15.4	14.2	16.9
Arts & Hum	8.4	5.8	4.5	1.7	3.4	7.6	9.1	3.7	7.9	6.6	2.2
Engineering	0.3	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.3	0.0
Trade, Indus	0.1	0.2	0.9	0.0	0.4	0.2	0.0	0.4	0.3	0.0	0.0
Housewife	1.1	1.5	0.9	1.7	1.3	1.1	1.1	1.7	1.3	1.0	0.7
Other	5.6	6.9	14.5	0.0	11.6	6.0	9.1	11.2	5.9	7.0	10.3
Undecided	17.1	17.6	17.3	0.0	18.5	16.6	17.0	17.0	17.0	15.9	16.2
Degree Aspiration											
Voc. Tech. 2yr.	1.7	2.1	19.1	1.7	12.0	2.5	8.1	10.3	2.4	3.3	11.6
JC Degree	2.6	22.5	20.0	1.7	19.7	7.2	12.8	18.1	6.4	10.3	22.5
BA	58.4	46.9	28.2	49.2	41.6	54.4	50.0	42.4	55.0	52.1	39.9
MA	29.0	20.1	17.3	13.6	11.2	26.5	20.9	13.6	27.2	23.4	10.9
PhD	2.4	0.9	1.8	0.0	1.7	1.9	2.3	2.1	2.1	2.2	0.7
MD, DDS	2.2	0.6	1.8	1.7	1.3	1.8	0.0	1.6	1.4	2.7	0.7
LLB	0.2	0.4	0.0	0.0	0.0	0.3	0.0	0.4	0.4	0.0	0.0
BD	0.1	0.2	0.0	0.0	0.4	0.1	0.0	0.4	0.1	0.2	0.7
Other	3.0	6.0	10.9	30.5	10.7	5.0	4.7	9.9	4.7	5.8	10.9

Table B cont.

	4-Year	JC	Tr-Bus	Nurs	Never Att.	F Time	P Time	Not Coll.	No Work	W Stu	Full Time
Goals in College											
Develop Mind	46.3	39.7	37.3	21.7	37.6	43.9	34.8	35.8	44.8	40.9	31.9
Voc Prof Trn	46.0	54.6	54.5	75.0	51.7	49.1	59.6	54.3	47.5	53.5	58.7
Higher Inc.	1.5	1.5	4.5	1.7	3.0	1.5	2.2	1.6	1.6	2.0	2.2
Nonacademic Ach.											
Science											
3+	7.9	4.9	2.5	15.9	4.0	7.4	3.1	4.1	6.4	8.2	2.9
1-2	24.1	21.6	22.8	31.8	21.3	23.7	20.3	19.9	23.9	23.1	18.1
0	68.0	73.5	74.7	52.3	74.7	68.9	76.6	76.0	69.8	68.7	79.0
Art											
3+	6.7	5.4	4.5	4.2	3.5	6.4	6.8	3.4	6.6	5.6	4.1
1-2	25.8	23.9	18.2	29.2	24.5	24.9	29.7	26.3	25.0	25.4	22.8
0	67.5	70.7	77.3	66.7	72.0	68.6	63.5	70.2	68.4	69.0	73.2
Writing											
3+	18.6	11.1	10.5	13.3	10.2	16.9	14.3	12.5	16.3	18.5	10.7
1-2	45.6	41.5	37.2	46.7	50.3	44.4	45.7	47.3	45.1	41.5	48.2
0	35.8	47.4	52.3	40.0	39.5	38.7	40.0	40.2	38.6	39.9	41.1
Leadership											
3+	41.8	35.9	30.4	40.7	34.1	40.5	29.4	38.0	39.6	40.2	37.6
1-2	40.7	38.7	48.0	40.7	39.5	40.2	51.8	37.6	40.7	40.7	39.1
0	17.5	25.3	21.6	18.6	26.4	19.2	18.8	24.5	19.6	19.1	23.3
Music											
3+	34.7	28.8	20.0	35.1	26.6	33.1	31.0	25.6	33.6	30.5	20.6
1-2	34.7	34.3	43.0	24.6	29.4	34.8	29.8	30.5	34.9	33.8	29.8
0	30.6	36.9	37.0	40.4	44.0	32.0	39.3	43.8	31.1	35.7	49.6
Drama											
3+	21.1	19.3	15.1	21.8	17.2	20.8	15.4	19.2	19.6	22.0	15.9
1-2	42.8	37.2	40.9	40.0	40.5	42.1	30.8	40.2	43.7	38.6	39.7
0	36.0	43.5	44.1	38.2	42.4	37.1	53.8	40.6	36.7	39.4	44.4
Mdn Fam Inc	7,500	7,480	6,820	7,320	6,370	7,890	7,790	6,360	8,130	7,080	6,200
N	1680	469	110	60	234	2273	89	243	1595	607	138

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